



Psychology

Worksheet 5.3

Example answer to practice question 1 (Chapter 5)

This model answer is a guide for students in terms of structure and content. It represents above-average work.

1 Discuss how biological factors influence **one** psychological disorder.

[22 marks]

Phobias are excessive or unreasonable fears that occur in response to specific objects or situations, and people who have this disorder tend to try to avoid exposure to the stimulus, sometimes afraid that they will have a panic attack if they encounter it. Researchers have investigated several different biological factors that influence phobias, focusing on the role of hormones and neurotransmitters in relation to the fight-or-flight response and on genetic and evolutionary origins of the disorder. This essay addresses each of these in turn.

The fight-or-flight response is a physiological reaction to some kind of threat which prepares the body to deal with the threat. It involves a surge in adrenalin levels, increased heart rate and sweating, and ends when GABA is released to return the body to its normal state. Phobia researchers have looked for reasons why the fight-or-flight response might be triggered when a phobic person encounters a specific animal, item or situation. Evidence that the fight-or-flight response might be overactive in people with phobia is provided by Merckelbach et al. (1996), who indicate that people with the disorder have elevated levels of ACTH and that this is associated with easier learning of new fears. Evidence that phobic individuals have abnormal levels of the neurotransmitter GABA and therefore have trouble returning to a normal state when the fight-or-flight response starts is provided by studies showing that medication which increases levels of GABA is effective in reducing symptoms in this disorder. Research in this area is sometimes considered to be reductionist because it focuses on neurotransmitters and hormones, ignoring the many other symptoms of phobias, such as catastrophic thoughts. While it is possible that biological factors influence such cognitive symptoms, it is difficult to demonstrate this in experimental research because it could cause harm to participants: researchers are reluctant to experimentally create phobias in healthy participants. Problems in levels of hormones and neurotransmitters may be genetic: Skre et al. (2000) found that identical twins are more likely to both have a phobia than non-identical twins, but often the type of phobia is different. Although this provides strong evidence that the problem may be genetic in origin, there are two problems with this evidence. First, identical twins do share their environment to a large extent, and second, no precise causal connection between any genes or combination of genes and behaviour can be established.

Other research has focused on the brains of phobic individuals to determine what parts of the brain are active. Ahs et al. (2009) have shown that the amygdala is very important in the fear reaction by correlating ratings of distress with activity in the amygdala in the right hemisphere of the brain. Their research suggests that the amygdala sparks the fight-or-flight response in people, and they argue that when fears are learned, this is reflected in strengthened connections between object recognition areas of the brain and the amygdala. Research



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like this is helpful in describing the process of the fear reaction that phobic people go through, but it is not clear exactly what is the cause and what is the effect: brain-imaging studies of phobic people are capable of demonstrating correlation, not causation.

Evolutionary psychologists have tried to investigate the cause of phobias by considering the phobic response as an evolved reaction. While it is usually very difficult to carry out research that will prove an evolutionary hypothesis, Ohman et al. (1975) were able to show that people are faster to learn some specific fears than others. Although the experiment was possibly unethical, Ohman et al. tested their ideas by pairing electric shocks with 'prepared' and 'unprepared' stimuli. Pictures of prepared stimuli included sometimes dangerous animals like snakes and spiders. It was easier for participants to be trained to fear these pictures than pictures of unprepared stimuli like flowers. Other evolutionary psychology research by Davey et al. (1998) in several countries suggests that many of our phobias are linked to the disgust reaction. Therefore, the conclusion from evolutionary research is that it is a survival advantage for us to recognize dangerous and disgusting things quickly and avoid them. This is supported by Bennett-Levy and Marteau's (1984) correlational study showing that these are the two features of animals that we are most afraid of.

Thus we can see that evolution, brain anatomy and biochemistry all seem to affect phobias, possibly explaining why humans have the capacity for the disorder and explaining how the phobic reaction occurs in the body. Methodological limitations including the ethical impossibility of experiments mean that we are limited mostly to correlational research which cannot show cause and effect, thus leaving us with an incomplete understanding of the importance of biological factors, but with directions for future research and clues to assist treatment of the disorder.